SURVEY OF SOUTHERN FOREST NURSERIES: FUMIGATION PRACTICES AND PEST MANAGEMENT CONCERNS

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The proposed ban on the production and importation of methyl bromide by the Environmental Protection Agency in 2001 is anticipated to have an adverse impact on forest tree nurseries in the southern region. In 1995, a survey was mailed to 87 southern managers of forest nurseries to determine what their current pest problems are, what type of alternatives to methyl bromide fumigation have-been attempted, and what pest problems have occurred as a result of these alternatives. A total of 45 (52%) nursery managers responded to the survey. The percentage of state, industry, and private nurseries that answered the survey was 94%, 66%, and 12% respectively.

The majority of nursery managers (89%) routinely use MBC (methyl bromide with chloropicrin[1]) fumigation for control of pest problems. Fumigation after every other crop was conducted by 58% of nurseries that rely on MBC. Fumigation with MBC before every crop was reported by 25% of nurseries. Another 8% of the nursery managers reported fumigation before every other crop of pines and before every crop of hardwoods. Only 5% of nursery managers reported fumigation before every third to fifth crop, and another 5% were not fumigating their nursery.

Nursery managers were asked to provide information regarding the pest problems that occur in their nurseries under their current nursery pest management practices. The most severe pest problem reported was nutsedge (*Cyperus* spp.) with 18% of managers listing it as a severe-yearly problem, and 33% listing it as a moderate-yearly problem. Preemergence and post-emergence damping-off were primarily considered as slight-periodic problems, but 18% of managers listed post-emergence damping-off as a moderate-yearly problem. Insect pest problems, such as cutworms (Family: *Noctuidae*) and white grubs (*Phyllophaga* spp.), were reported most frequently as a slight-periodic problem. Specific disease problems such as Rhizoctonia blight and Cylindrocladium root rot were reported primarily as slight-periodic pest problems by a small percentage of managers.

Fumigants other than MBC were used or tested by 42% nursery managers; most of these (17 of 45) use or had tested dazomet[2] (Basamid®). Dazomet was reported to be less

[1] This publication reports results involving pesticides. It does not contain recommendations for their use, nor does it imply that the uses discussed here have been registered. All uses of pesticides must be registered by appropriate State and Federal agencies before they can be recommended.

[2] The use of trade or firm names in this publication is for reader information and does not imply endorsement by the U.S. Department of Agriculture of any product or service. CAUTION: Pesticides can be injurious to humans, domestic animals, desirable plants, fish or other wildlife - if they are not handled or

effective than MBC by 11 of the 17 managers. Inability to control weeds was cited as the most common problem with the use of dazomet. Metam-sodium (Busan 10200) was the only other fumigant listed by a manager to have the same effectiveness as MBC. One nursery-manager had tested vorlex (discontinued 1991 by NOR-AM) and reported it to be less effective than MBC. A new fumigant, consisting of 70% dichloropropene and 30% chloropicrin (Triform®), was tested by one manager and reported to be less effective than MBC.

Twenty out of 45 nursery managers have attempted to manage a portion of their nursery without the benefit of fumigants. Six of these nurseries were just in the process of establishing studies, while 14 nurseries have been managed for. 2 years to more than 10 years without fumigation. Again, weeds were the most frequently listed problem (9 out of 14), followed by diseases (5 out of 14) in unfumigated beds. Only two nurseries continue to manage their entire nursery without the use of fumigation.

Managers were asked which pests they anticipated to be a problem in their nursery if. all fumigants were withdrawn from the market. Sixty-seven percent of the nursery managers responded that weeds would be a problem in their nursery. Nutsedge was the most common weed listed (15 out of 45), followed by spurge (5 out of 45). Sixty-two percent of managers listed diseases as potential problems. The disease problems listed most often were root rots (14 out of 45), damping-off (7 out of 45), and nematodes (7 out of 45). Other soilborne organisms listed were white grubs (5 out of 45) and cutworms (2 out of 45).

When managers were asked what the greatest needs were for management of pest problems, they rated the development of herbicides for control of specific weed problems (80%), and better information on prevention and control of specific disease problems (60%) as high priority needs.

In this survey, nutsedge was reported to be the greatest problem in nurseries and is expected to be the greatest future problem if fumigants were not available. The lack of effective weed control by available herbicides and alternate fumigants helps to explain the emphasis that managers place on technology development of herbicides for control of specific weeds.

In addition to controlling weeds, fumigation with MBC has been relied upon by nursery managers to prevent soilborne diseases. Alternate fumigants are being tested in many nurseries in the South. Whether any one fumigant will replace MBC in effectiveness as a biocide is unknown at this time. Nursery managers may have to use a more comprehensive IPM program to control soilborne pests when methyl bromide is no longer available.

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applied properly. Use all pesticides selectively and carefully. Follow recommended practices for the disposal of surplus pesticides and pesticide containers.